

calculating first and second preparation positions for each of said x-ray tube and detector, said first and second preparation positions being located at opposite ends of said scan ranges and corresponding to a distance traveled by said x-ray tube and detector, said x-ray tube not exposing said detector to x-rays while moving through said preparation positions;

11 moving said detector and x-ray tube to said first detector and x-ray tube preparation positions, respectively;

acquiring a first x-ray image with said detector while moving said detector in a first direction over a first detector scan range and moving said x-ray tube in a second direction over a first tube scan range, said second direction differing from said first direction, said first x-ray image being acquired based on said scan parameters;

moving said detector and x-ray tube to said second detector and x-ray tube preparation positions, respectively; and

acquiring a second x-ray image with said detector while moving said detector in said second direction over a second detector scan range and moving said x-ray tube in said first direction over a second tube scan range, said second x-ray image being acquired based on said scan parameters.

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23. (Amended) The method of claim 1, said calculating step further comprising loading stored x-ray tube angulation data and detector and x-ray tube velocity and travel distances corresponding to a subsequent x-ray image while moving said x-ray tube through said second preparation position.

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